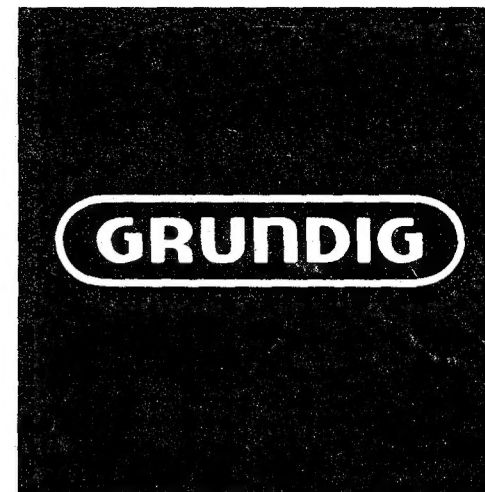


Bedienungsanleitung  
Operating Instructions  
Mode d'emploi  
Istruzioni per l'uso  
Gebruiksaanwijzing



## D Bedienung

### ① Speicher-Taste

Zum Abspeichern von gewähltem UKW-Sender bei gedrückter U/FM-Taste ② auf Festsender-Tasten ③ (U 1 ... U 8).

### ② U/FM-Taste (UKW-Wellenbereichstaste)

Wellenbereichstaste für Ultrakurzwelle (87,5 ... 108 MHz) und Vorwahlprogrammierung zur Abspeicherung

### ③ UKW-Festsender-Tasten

Zum Abrufen vorher einprogrammierter UKW-Stationen.

### ④ MUTING-Taste

Ruhestellung Muting aus, gedrückt Muting ein. Unterdrückt während des Abstimmens im UKW-Bereich das Rauschen zwischen einzelnen Sendern.

### ⑤ Taste

Bei Stereo-Platten- bzw. Bandüberspielung drücken.

### ⑥ Taste

Bei Mikrofonaufnahmen drücken.

### ⑦ MONO-Taste für MPX-Stereo

Ruhestellung Stereo; gedrückt Mono.

### ⑧ AFC-Taste

Ruhestellung AFC aus; gedrückt AFC ein.

### ⑨ Wellenbereichstasten

LW 145 ... ca. 275 kHz  
MW 510 ... 1620 kHz  
K 1 5,9 ... 6,2 MHz  
K 2 6,1 ... 13,2 MHz  
K 3 12,9 ... 22,9 MHz

### ⑩ Tragegriff

### ⑪ Teleskopantenne

Schwenkbar. Für UKW- bzw. KW-Empfang. Für MW- bzw. LW-Empfang ist eine Ferritstab-Antenne eingebaut.

### ⑫ Digitale Frequenzanzeige (LCD)

für alle Wellenbereiche. Bei UKW und KW in MHz, bei MW und LW in kHz ablesbar.

### ⑬ Digitaluhr (LCD)

mit Stelltasten. Einstellen siehe gesonderte Anleitung.

### ⑭ Wellenbereichsskala

Bei Netzbetrieb oder Versorgung durch äußere Gleichspannungsquelle beleuchtet.

### ⑮ Eingebaute Mikrofone

Für Stereo-Aufnahmen; dazu Taste ⑥ drücken. Nach Anschluß eines externen Mikrofons an der Buchse ④ werden die beiden eingebauten Mikrofone automatisch abgeschaltet. Ein Mithören ist nur bei Anschluß externer Mikrofone möglich.

### ⑯ Kontrollinstrument

Zeigt in Ruhestellung des Schalters ⑮ die Feldstärke an (beste Einstellung eines Senders bei größtem Zeigerausschlag). Beim Drücken des Schalters BATT/☼ ⑮ nach oben, wird die Betriebsspannung angezeigt. Bei Batterie- oder Accubetrieb: Zeiger im rechten Feld = Batteriesatz verfügt über ausreichende Spannung bzw. Accu ist aufgeladen. Zeiger am entsprechenden Übergang = Batteriesatz wechseln bzw. Accu nachladen.

### ⑰ Lautstärkeregler

Leise  laut

### ⑱ Stereo-Balance-Regler

### ⑲ Klangregler für Bässe

### ⑳ Klangregler für Höhen



### ㉑ Senderwahlknopf

mit Grob- und Fein-Trieb

### ㉒ Kopfhörerbuchse

Für den Anschluß eines Stereo-Kopfhörers, z. B. GRUNDIG HiFi-Stereo-Hörer GDHS 223 mit Klinkenstecker. Die eingebauten Lautsprecher werden dabei abgeschaltet.


### ㉓ Ein-/Aus-/Autom.-Schalter

schaltet sekundärseitig.  
Stellung Autom.: Gerät schaltet zur vorprogrammierten Zeit ein und aus sowie datumsbezogene Ein- und Ausschaltfunktion.  
Stellung : Gerät ausgeschaltet.  
Stellung : Gerät eingeschaltet

### ㉔ Lautsprecher-Schalter

Ein/Aus-Schalter für Hochtonlautsprecher.

### ㉕ BATT/☼-Schalter

In Ruhestellung ist das Instrument ⑯ als Abstimmmanzeige geschaltet.  
In Schaltstellung unten : Skalenbeleuchtung und Tuninganzeige.  
In Schaltstellung oben BATT/☼: Skalenbeleuchtung und Batterie- bzw. Accubetriebsanzeige.

### ㉖ Schalter für digitale Frequenzanzeige ⑫

### ㉗ STOP/CASS.-Taste

Löst alle Lauffunktionstasten aus, bei nochmaligem Drücken öffnet sich das Cassettenfach ㉔.

### ㉘ Reverse-Taste (nur bei Wiedergabe)

Beim Drücken der Reverse-Taste (rastet nicht) erfolgt eine Laufrichtungsumkehr des Bandes, d. h. die Cassette braucht nicht herausgenommen und umgedreht zu werden, um die andere Seite des Bandes anhören zu können.

### ㉙ Schneller Vorlauf

Zum schnellen Vorspulen des Bandes.

### ㉚ Schneller Rücklauf

Zum schnellen Rückspulen des Bandes.

### ㉛ START-Taste

Zum Starten des Bandlaufes bei Aufnahme und Wiedergabe.

### ㉜ Pause-Taste

Zum Unterbrechen des Bandlaufes bei Aufnahme und Wiedergabe drücken.

### ㉝ Aufnahme-VAT-Taste

Zum Aufnehmen drücken und halten bis die Start-Taste ㉛ gedrückt ist. Langsames Loslassen der Taste bewirkt eine weiche Einblendung der Aufnahmen. Bei gedrückter Aufnahme-Taste leuchtet die Leuchtdiode ㉞.

### ㉞ Cassettenfach

Mit der STOP-Taste ㉗ zu öffnen.

### ㉟ Bandsortenschalter

Stellung Fe: für Eisenoxidbänder  
Stellung FeCr: für Ferrochrombänder  
Stellung Cr: für Chromdioxidbänder  
Einstellung nur bei Aufnahme nötig.

### ㊱ Zählwerk

mit Rückstelltaste. Zum leichteren Auffinden bestimmter Bandstellen.

### ㊲ Stereo-Basisbreitenregler

zur akustischen Verbreiterung des Klangbildes.

### ㊳ LED-Stereo MPX

leuchtet beim Empfang von Stereosendungen, dabei muß die Taste ⑦ in Ruhestellung sein.

### ㊴ LED-Reverse

leuchtet bei Reverse-Betrieb.

### ㊵ LED-Record

leuchtet bei gedrückter Aufnahme-Taste im Rhythmus der Modulation auf.

### ㊶ Antennenanschluß

für UKW-Dipol.

### ㊷ UKW-Antennenwahlschalter

Von Teleskopantenne auf Außen-Dipol umschaltbar.

### ㊸ Buchse

Taste ⑥ muß gedrückt sein.

**GRUNDIG**

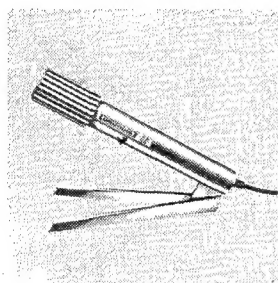
Zubehör

Accessories

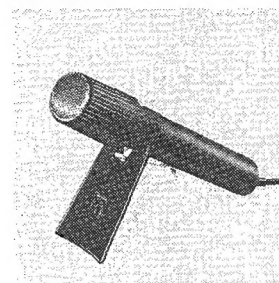
Accessoires

Accessori

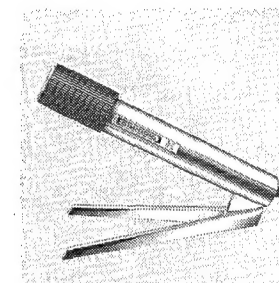
Accessoires



GCM 319



GDM 308 Report



GDM 314



GCMS 332

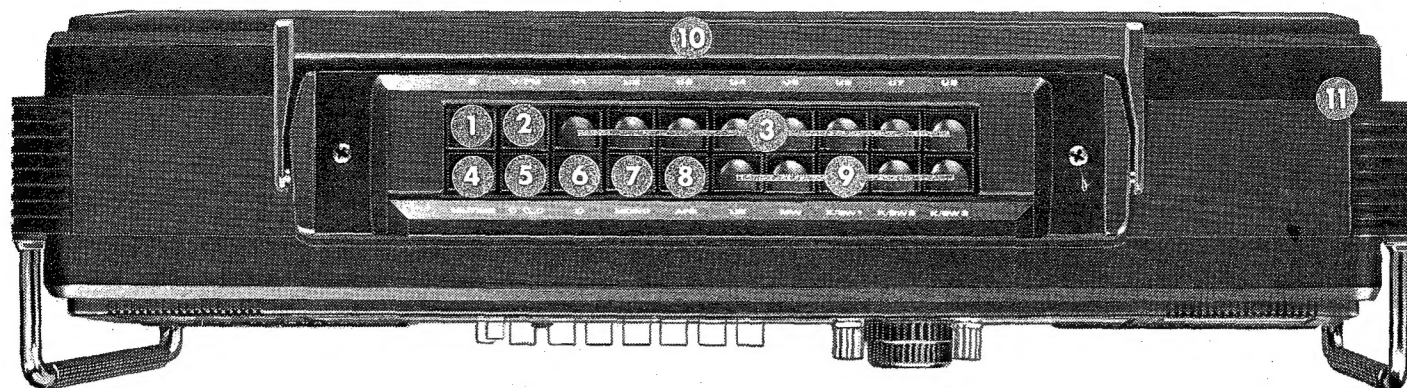


Tonband Adapter 481  
Tape Recorder Adapter 481  
Adaptateur magnéto 481  
Adattatore TB 481  
HiFi TB adapter 481



- (D) Seite 6...15
- (GB) Page 16...25
- (F) Page 26...35
- (I) Pagina 36...45
- (NL) Pagina 46...55

1



2









## Zubehör

### Tonbandcassetten

GRUNDIG Studio-Cassette, HiFi-Cassette, Super-HiFi-Cassette oder Profi-Cassette jeweils als C 60 mit 2 x 30 Minuten bzw. C 90 mit 2 x 45 Minuten Laufzeit erhältlich.

Unsere Tonbandcassetten unterliegen ständiger Qualitätsüberwachung und garantieren mechanische und elektrische Spitzenleistung. Wir empfehlen daher GRUNDIG Tonbandcassetten zu verwenden.

### Reinigungscassette 461

zum Säubern der Köpfe einfach durchlaufen lassen (ca. fünf Minuten Laufzeit).

### Mikrofone

GDM 308 mit Start/Stop-Fernbedienung bei Aufnahme (Mono).

GCM 309      GDM 314      GCM 319

GCMS 332 Stereo-Kondensator-Mikrofon

### Mikrofonverlängerungskabel 391

für GCMS 332 und GCM 319

### Adapter 278 a

zum Anschluß von zwei Einzel-Mikrofonen bei Stereo-Aufnahmen.

Kombi-Adapter 299 zum Anschluß von 2 TB/CR-Geräten. Ermöglicht auch ein gegenseitiges Überspielen von Gerät zu Gerät.

Verbindungskabel 242 zur Verbindung mit einem Rundfunkgerät oder einem zweiten Tonbandgerät.

### Zwischenstecker 294

zum Anschluß von Monoquellen.

### Zwischenstecker 296

zum Anschluß eines zweiten Tonbandgerätes (bei Bedarf)

### Zwischenstecker 293

zum Überspielen von Aufnahmen auf TB-Geräte ohne speziellen Phonoeingang.

### Kopfhörer

Kopfhörer GDHS 216 K oder GDHS 223 K (mit Klinkenstecker) zum Abhören bei Wiedergabe anstelle der eingebauten Lautsprecher.

### HiFi/TB-Adapter

zum Aufnehmen des Begleittones von Fernsehsendungen

### GRUNDIG Dryfit-Accu 476

### Autobatterieadapterkabel II

### Lautsprecher-Kompactbox 150, 150 b

## Technische Daten

### Allgemein:

#### Spannungsversorgung:

1. Netzbetrieb: 110 ... 127 V bzw. 220 ... 230 V  $\pm 10\%$ , 50 ... 60 Hz;
2. Batteriebetrieb: 6 Monozellen IEC R 20 oder Dryfit-Accu 476 + 2 Mignonzellen für LCD-Uhr (gleichzeitig Stützbatterien für UKW-Speicher).
3. Externe Spannungsversorgung: 10 ... 16 V =

Netzspannungswähler: in der Geräterückwand.

Sicherungen: primär T 315 mA, sekundär 2 x T 2 A

Ausgangsleistung: an 4  $\Omega$  nach DIN 45 324

Batteriebetrieb: 2 x 2,5 W  
Netzbetrieb: 2 x 7 W  
Netzbetrieb: 2 x 10 W

} Sinusleistung

} Musikleistung

Lautsprecheranschluß: 2 Normbuchsen 41 529

für Außenlautsprecher = 4  $\Omega$

Stereo-Kopfhörer-Klinkenbuchse (6,35 mm)

Klangregelung: Getrennte Regler für Höhen und Bässe sowie Stereo-Balance und Basisbreitenregler.

#### Anschlußbuchsen:

1.  $\text{IO} \approx$  -Buchse

Eingangsspannung für Mikrofon: 2 x 0,6 mV an 27 k $\Omega$

Ausgangsspannung für Verstärker: 2 x 500 mV an 25 k $\Omega$

2.  $\text{OO} / \text{O}$  -Buchse

Eingangsspannung für Tonband: 2 x 0,6 mV an 15 k $\Omega$

Eingangsspannung für Stereo-Plattenspieler:

2 x 200 mV an 800 k $\Omega$

(Keramik- bzw. Kristall-System)

Ausgangsspannung für Tonband: 2 x 100 mV an 47 k $\Omega$

#### Rundfunkteil:

4-fach abgestimmtes FM-Mischteil mit Kapazitätsdioden, selektiver Vorstufe und Bandfilter als Zwischenkreis, getrennter Oszillator. Elektronische Festsenderspeicherung für acht UKW-Sender nach neuartigem Spannungssynthesekonzept mit C-MOS-Speicher für 8 x 10 bit, P-MOS-Steuerschaltung und Komparator. Getrennte ZF-Verstärker für AM und FM mit IC's. Schaltbare pegel- und verstimmabhängige Muting. PLL-Stereoautomatik-Decoder in Matrixschaltung mit feldstärkeabhängiger Kanaltrennung.

Anzeige einer HF-Stereosendung durch grüne LED.

Aktiven Tiefpaß für 19/38 kHz-Unterdrückung.

Logarithmische Feldstärkeanzeige für UKW.

Schaltbare AFC.

Elektronische AM/FM-NF-Umschaltung.

Interferenzfilter im AM-NF-Signalweg.

Hochohmige AM-Eingangsschaltung mit Feldeffekt-Transistor.

Schaltbarer Frequenzzähler mit digitaler LCD-Anzeige in kHz und MHz mit 1-kHz-Auflösung bei AM und 10-kHz-Auflösung bei UKW.

Programmierbare Schaltuhr mit 6-stelliger alphanumerischer Flüssigkristallanzeige, Datumsanzeige und mit Zeit- oder zeit- und datumbezogener Ein- und Ausschaltfunktion.

Stereoendstufe mit IC's.

#### Wellenbereiche:

LW 145 ... ca. 275 kHz      K 1 5,9 ... 6,2 MHz

MW 510 ... 1620 kHz      K 2 6,1 ... 13,2 MHz

UKW 87,5 ... 108 MHz      K 3 12,9 ... 22,9 MHz

#### Kreise:

FM 11, davon 4 abstimmbare und 1 keramisches 2-fach-Filter.

AM 7, davon 2 abstimmbare und 1 keramisches 3-fach-Filter.

Zwischenfrequenzen ca. 10,7 MHz und 460 kHz.

Schwundregelung: AM 2-stufig.

Stereo-Decoder (IC):

arbeitet nach dem Zeit-Multiplex-Verfahren.

#### Eingebaute Antennen:

Teleskopantenne für UKW und K/SW

Ferritstabantenne für LW und MW

Anschluß für UKW-Außenantenne (schaltbar)

Batteriebetriebsstundenzahl: 56 Stunden nach DIN 45 314 (bei Rundfunkteil)

#### Cassettenteil:

Tonträger: Compact-Cassette nach DIN 45 516.

Spurlage: Viertelspur International

Bandgeschwindigkeit: 4,76 cm/sec.

Antrieb: Tachogeregelter Gleichstrommotor

Übertragungsbereich: 40 ... 12 500 Hz

Ruhegeräuschspannungsabstand:  $\geq 59$  dB (mit FeCr)

Kurzzeitige Geschwindigkeitsschwankung:  $\leq 0,3\%$

Automatik: Aussteuerung bei Aufnahme und automatischem Auslösen der Tasten bei Bandende (schneller Vor- oder Rücklauf) Reverse-Betrieb

Einbaumikrofone: 2 Electretmikrofone mit eingebautem einstufigem FET-Verstärker.

Batteriestundenzahl: 35 Stunden nach DIN 45 525 (bei TB-Betrieb).

Die angegebenen technischen Daten sind nach den Meßvorschriften der Deutschen Industrie-Norm (DIN) ermittelt.

Dieses Gerät entspricht den Sicherheitsbestimmungen nach VDE 0860 und somit den internationalen Sicherheitsvorschriften IEC 65 bzw. CEE 1.

Änderungen vorbehalten!

## GB Operating Instructions

### ① Memory Button

For storing FM stations on station buttons ③ (U 1 . . . U 8) after selection and with U/FM button ② depressed.

### ② U/FM Button (VHF Waveband button)

Waveband button for VHF/FM (87.5 . . . 108 MHz) and presetting for storing.

### ③ VHF Station Buttons

For selection of previously selected VHF stations.

### ④ MUTING Button

Rest position = muting off, when depressed = muting on. Suppresses interstation noise when tuning on the VHF/FM band.

### ⑤ Button

Press when recording from records or tapes.

### ⑥ Button

Press when making microphone recordings.

### ⑦ MONO Button for MPX Stereo

Rest position = stereo, when depressed = mono.

### ⑧ AFC Button

Rest position = AFC off, when depressed = AFC on.

### ⑨ Waveband Buttons

LW 145 . . . approx. 275 kHz  
MW 510 . . . 1620 kHz  
K 1 (SW 1) 5.9 . . . 6.2 MHz  
K 2 (SW 2) 6.1 . . . 13.2 MHz  
K 3 (SW 3) 12.9 . . . 22.9 MHz

### ⑩ Carrying Handle

### ⑪ Telescopic Aerial

Retractable and can be swivelled in any direction for VHF and SW reception. A ferrite rod aerial is built-in for MW and LW reception.

### ⑫ Digital Frequency Display (LCD)

For all wavebands, in MHz on FM and SW and in kHz on MW and LW.

### ⑬ Digital Clock (LCD)

With setting buttons. For procedure see special instructions.

### ⑭ Tuning Scale

The scale is illuminated when the unit is operated from the mains supply or an external DC supply.

### ⑮ Built-in Microphones

Press button ⑥ for stereo recording. When connecting an external microphone to socket ④③, the internal microphones will be automatically disconnected. Monitoring is possible only when connecting external microphones.

### ⑯ Control Instrument

With the switch ⑮ in rest position, shows the field strength (tune for maximum needle deflection). With the switch in the top position BATT, it indicates the battery/accumulator voltage. Pointer in right field = batteries are in good condition or accumulator is charged. Pointer to the left of the respective framed field = change batteries or recharge accumulator.

### ⑰ Volume Control

Soft  loud

### ⑱ Stereo Balance

### ⑲ Tone Control for bass

### ⑳ Tone Control for treble

### ㉑ Tuning Control


With coarse and fine tuning.


### ㉒ Headphone Socket

For connection of a stereo headphone with jack plug, e. g. GRUNDIG HiFi stereo headphone GDHS 223. When connecting, the internal loudspeakers will be switched off.

### ㉓ On/Off/Automatic Switch

Operates on the secondary side. Setting Autom.: Recorder switches on and off at the programmed time and date.

Setting : Recorder switched off.


Setting : Recorder switched on.

### ㉔ Loudspeaker Switch

On/off switch for high frequency loudspeakers.

### ㉕ BATT/-Switch

With the switch in rest position, instrument ⑯ is used as a tuning meter.

Switch in bottom position : Scale illumination and tuning indication.

Switch in top position BATT: Scale illumination and indication of battery/accumulator condition.

### ㉖ Switch for Digital Frequency Indication ⑫

### ㉗ STOP/CASS. Button

Releases all the cassette recorder function buttons. Pressing the button once more opens the cassette compartment.

### ㉘ Reverse Button (playback only)

When pressing the reverse button (which does not lock), the tape will run in opposite direction, i. e. the cassette does not have to be removed and turned over for playback of the other tracks.

### ㉙ Forward Wind Button

For fast forward winding the tape.

### ⑳ Rewind Button

For fast rewinding the tape.

### ㉑ START Button

To start the tape for record and playback.

### ㉒ Pause Button

Press to stop the tape temporarily during record and playback.

### ㉓ Record VAT Button

Press to make a recording and hold down until the start button ㉑ has been depressed. By slowly releasing the button, the signal can be faded onto the tape slowly. LED ④④ lights up when record button is depressed.

### ㉔ Cassette Compartment

Depress button ㉗ to open.

### ㉕ Tape Selector Switch

Setting Fe: Iron oxide tape  
Setting FeCr: Ferrochrome tape  
Setting Cr: Chromium dioxide tape  
To be operated only when recording.

### ㉖ Counter

With reset button, for easy location of previously recorded material.

### ㉗ Stereo Basic Width Control

For acoustically broadening the sound impression.

### ㉘ LED Stereo MPX

Lights up when stereo broadcasts are being received. Will operate only with button ⑦ in rest position.

### ㉙ LED Reverse

Lights up on reverse operation.

### ㉚ LED Record

Fluctuates in sympathy with the speech or music when record button is depressed.

### ㉛ Aerial Socket

For VHF dipole.

### ㉜ VHF Aerial Selector Switch

To switch from telescopic aerial to external dipole.

### ㉝ Socket

Button ⑥ must be depressed. When connecting an accessory, the built-in microphones ⑮ are automatically disconnected. This socket is for recording from external microphones and remote control stop/start of the motor is possible using a microphone incorporating a switch. For recording a programme from a second radio receiver. For playback via a stereo amplifier.



**④④ Socket  $\phi/\infty$**

Button ⑤ must be depressed.  
For recording or playing back with other sound sources (stereo or mono).

**④⑤ Battery Compartment**

**④⑥ Oscillator Switch**

Set to the other position to suppress whistle when recording long and medium-wave transmissions.

**④⑦ Voltage Selector with Fuse Holder**

For changing to the second voltage range, the mains cable must be disconnected from the recorder. Fuses can also be changed only when the mains plug is disconnected from the recorder and the fuse holder is in the centre position.

**④⑧ Mains Connection Socket**

Mains voltage range 110 . . . 127 V AC and 220 . . . 230 V AC, 50 . . . 60 Hz.  
Before connecting mains cable, set mains voltage selector ④⑦ to the correct mains voltage, the internal batteries will be disconnected.

**④⑨ Connection for External DC Supply**

Voltage range 10 . . . 16 V.  
Eg: 12 V car battery via car battery adapter cable II, the internal batteries will be disconnected.

**⑤① Loudspeaker Sockets**

For connection of external loudspeaker boxes, the internal speakers will be disconnected.

**⑤② Mains Cable Compartment**

For storage of the mains cable.

**Additional Information for Sets used in Great Britain**

Fit or have fitted a 13 A 3-pin plug and fit the plug with a 3/5 A fuse. Connect the brown wire of the mains lead to the live pin, marked "L" or red or brown and the blue wire to the neutral pin, marked "N" or black or blue — on no account must either of the wires be connected to the earth pin, marked "E" or green or green/yellow.

Sets sold in Great Britain are suitable for operation from a mains supply of 240 V AC.

Disconnect from the mains supply by removing the mains plug from the wall socket when not in use for long periods.

## General

Since 1. 1. 1966 the new copyright laws in force which allow owners of tape recorders to make copies of copyright works and protects them from claims by the originators of those works provided that the copy is only used for private purposes. You may therefore use this recorder for tape recordings in your private domain even if this involves the recording of works protected by copyrights. The identification plate is located at the bottom of the recorder.

The German Federal Postal Authorities draw your attention to the fact that the "General Sound and TV-Radio Licence" entitles you only to install and to operate sound, TV and radio receivers. Only radio transmissions and no other kind of transmissions may be received by means of these sets.

## Voltage Supply

The set can be operated from the following three power sources:

- A. Mains supply
- B. 6 x 1.5 V cells or GRUNDIG accumulator
- C. External DC supply

### A. Mains Operation

The integrated mains unit allows you to conserve battery life by running your recorder from a mains supply of 110 . . . 127/220 . . . 230 V AC, 50 . . . 60 Hz. The adjusted voltage can be seen on voltage selector ④⑦ and must be the same as in your home. If it is necessary to switch over to the second voltage range, turn the voltage selector ④⑦ to the opposite end position with the mains lead disconnected from the recorder. When connecting the mains cable, the fitted batteries will be automatically disconnected.

On mains operation, only the DC supply is interrupted when the recorder is switched off (⏻), while the mains transformer remains connected to the mains voltage. It is isolated from the mains only when the mains plug is disconnected.

### a. Changing fuses

Important: Disconnect the mains cable from the recorder!

To change a fuse, place voltage selector ④⑦ in centre position, lift up and remove. Make sure the rating is correct when replacing a fuse.

Important: Never repair a defective fuse, as this may cause the recorder to be damaged.

## B. Battery Operation

The recorder can also be operated independently of the mains supply by means of six 1.5 V cells. To insert or change the batteries, the cover of the battery compartment ④⑤ must be removed. Insert the batteries as indicated, observing polarity.

The life-span of a set of batteries depends largely on the quality of the batteries and the volume level at which the recorder is used. If the recorder section is used for two hours each day the battery life should be approximately 35 hours (DIN 45525), if the radio section is used for four hours each day the battery life should be about 56 hours on VHF mono without digital frequency display (DIN 45315). Only use leak-proof, high power type batteries (DIN 40866 or IEC R 20) which is equivalent to Ever Ready HP 2. Alkaline batteries, although more expensive, will last about twice as long (eg: Mallory MN 1300 or equivalent).

Important: The batteries should be removed when exhausted, or when the radio recorder is used on the mains supply for long periods. Damage caused by leaking batteries is not covered by the GRUNDIG guarantee.


With the recorder switched on and switch ②⑤ held to top position, the condition of the batteries can be read on the control meter ①⑥. The batteries are in good condition when the pointer of the meter is located in the framed field of the BATT. scale. If the pointer does not reach this field, replace the complete set of batteries.

## Digital Clock Batteries

For the digital clock, two additional miniature batteries must be inserted in the recorder (observe polarity!). The batteries have to be changed after approx. 1 year.

Simultaneously, the batteries provide the voltage supply for the station memory when the recorder is switched off or separated from the mains.

## Accumulator Operation

The set can be operated with the GRUNDIG Dryfit Accu 476. The accumulator is charged automatically when the set is connected to the mains. With the set switched on and the BATT  switch in top position, the state of charge of the accumulator can be read from the control meter. The accumulator must be recharged when the pointer of the meter does not reach the framed field of the ACCU scale.

## C. Operating from External DC Source

To connect an external 10...16 V DC supply to socket (49) the car battery adapter cable II must be used. This switches off the internal batteries.

## Switching On and Off/Automatic Operation

This is carried out with switch (23).

● = ON,  = OFF, AUTOM. = Automatic.

When the recorder is operated from the mains supply or external DC supply, the tuning scale (14), the control instrument (16), the LCD clock (13) and the LCD frequency display (12) will be illuminated. Illumination is also possible when using batteries by pressing lever (25). When used on mains, the recorder is permanently connected, even with the switch (23) in "off" position — because of the automatic accumulator charging circuit. If you wish to disconnect the recorder from the mains completely, simply pull out the mains cable plug. In position automatic, the recorder can be controlled via the built-in LCD clock (see chapter "Digital Clock").

## Radio Operation and Recording from Radio

### Built-in Aerials

The radio recorder is fitted with a "Multi-Match" telescopic aerial (11) for VHF and SW reception. Set VHF aerial selector switch (42) to telescopic aerial position. The aerial should be pulled out in one smooth movement without jerking to avoid damage. For FM extend only the bottom portion of the aerial (840 mm) (using the lower knob) until the knuckle at the base is exposed and locked in position. The rod should be tilted in a more or less horizontal position and rotated to find the position of best reception. For SW the telescopic aerial should be fully withdrawn (1140 mm) (using the upper knob) and kept upright.

An internal ferrite rod aerial is fitted for reception on MW and LW. The aerial is highly directional and the recorder should be rotated about its vertical axis to find the position of best reception.

### External Aerial

When operating the radio recorder at home, a VHF dipole or communal aerial system may be connected to aerial socket (41) for optimum VHF reception (set VHF aerial selector switch (42) to dipole position).

### Stereo Radio Reception

This radio recorder is suitable for reception of VHF stereo transmissions. The built-in stereo decoder is fitted with an automatic circuit to differentiate between stereo and mono programmes. When the programme transmitted is in stereo and the MONO button (7) is in the released position, the stereo indicator lamp (38) lights up. If it is required to receive a stereo programme in mono — eg: when reception is noisy due to low signal strength — the radio recorder can be switched to mono by depressing MONO button (7).

### Waveband Selection

Select the waveband required using buttons (2) and (9).

U/FM	=	VHF/FM (87.5...108 MHz)
LW	=	long wave (145... approx. 275 kHz)
MW	=	medium wave (510...1620 kHz)
KW/SW 1	=	short wave 1 (5.9...6.2 MHz)
KW/SW 2	=	short wave 2 (6.1...13.2 MHz)
KW/SW 3	=	short wave 3 (12.9...22.9 MHz)

### Tuning

Tune to the desired station with the tuning control (21). The coarse and fine tuning knobs permit optimum tuning of the received station. The best tuning point is obtained when the tuning meter (16) shows the highest reading. After tuning in a LW, MW or VHF station, move the receiver or the aerial to give maximum meter reading, as described under the section "Built-in Aerials". The adjusted frequency can be read in all wavebands on scale (14) or after switch (26) has been changed over, from the digital frequency display (12).

### VHF Station Buttons

On the VHF band, up to eight stations can be selected directly by pressing one of the station buttons (3). Before this is possible, the stations must be programmed. (Important: See also section headed "Digital Clock Batteries").

For station programming proceed as follows:

Depress the U/FM button (2).

Button AFC (8) not depressed.

Tune in the required station with the tuning control (21) and adjust for maximum deflection on meter (16).

Depress memory button "S" (1) and in addition one of the station buttons (3). With this, the desired station is stored. In the same way, the stations can be tuned in and stored on the station buttons U2...U8.

## Automatic Frequency Control on FM (AFC)

This can be switched in or out of circuit with the AFC button (8) and functions as follows:

1. After a station has been tuned in, the AFC will maintain the best tuning point.
2. If the tuning point is not optimum for some reason or other, the AFC will automatically correct the error.

After the FM station buttons (3) have been programmed, the AFC may be left switched on permanently (button depressed). As you tune through the VHF band (button U/FM (2) depressed) with the tuning control (21) the AFC will temporarily be disabled. The AFC will be switched on automatically approx. one second after the action of tuning has ceased.

## Muting on VHF

The muting can be switched on and off with muting button (4). When tuning through the VHF band, with the muting button depressed, tiresome inter-station noise is suppressed.

The muting works in two ways:

1. The reception of a weak noisy station will be suppressed completely.
2. With the muting switched on reception is only possible when a station is of sufficient signal strength to give a good noise free reproduction.

## Volume and Tone Controls

The volume and tone can be adjusted as required by means of the controls (17), (19) and (20).

## Stereo Balance (18)

Optimum stereo results are obtained when the radio recorder is placed directly in front of the listener and the balance control is set to mid position. When the radio recorder is positioned unfavourable, stereo balance can be restored by turning the balance control to the right or left.

## Stereo Basic Width Control (37)

By moving the control to the left or right, the overall impression can be expanded.

## High Frequency Loudspeakers

To improve the sound impression on FM reception or PU/TR reproduction, two high frequency loudspeakers can be switched into circuit using switch (24). Do not switch the high frequency loudspeakers into circuit when listening to AM.

## Stereo Headphone Socket

The socket (22) (6.35 mm stereo jack) in the front of the radio recorder is provided for the connection of a stereo headphone (GDHS 223 with jack plug), the loudspeakers will be automatically disconnected. Headphones of 4...2000  $\Omega$  and fitted with a corresponding plug may be used.

## Connecting External Loudspeakers

Two external loudspeakers (approx. 4  $\Omega$ ) may be connected to the sockets (50) (DIN 41 529) located on the rear of the radio recorder. When external loudspeakers are connected, the built-in loudspeakers will be disconnected.

## Cassette Operation

### Inserting the Cassette

The cassette compartment (34) will spring open on depressing button (27). Slide the cassette into the guides of the compartment lid with the full spool on the left and the open side at the bottom. Two stereo recordings can be made side by side on the tape; after the first run through, the cassette may be removed and turned over, making once more a full length of tape available for recording. To distinguish between the two tracks, the sides are marked **A** and **B**. The side to be recorded is that seen through the lid of the cassette compartment.

## Reverse Operation

For playback of recorded cassettes, the cassette does not have to be removed and turned over when it reaches the end of the tape. At tape end the drive mechanism is automatically switched to reverse operation (reversal of tape travel direction) and the tape will run in the opposite direction. At the same time the LED (39) lights up.

The drive mechanism will automatically switch to normal operation after the cassette has been changed (LED (39) does not light).

The reverse function can also be controlled manually by pressing the button (28) (button does not lock). Reverse operation is only possible on playback.

## Tape Selector Switch

The tape selector switch (35) must be set to the tape type of the cassette inserted, viz.

Cr	Chromium dioxide-cassette) (eg: GRUNDIG HiFi-cassette)
FeCr	Ferrochrome tape (eg: GRUNDIG Profi-cassette)
Fe	Iron oxide tape (eg: GRUNDIG Studio-cassette)

On playback, the setting of the tape selector switch is immaterial.

## Recording of Radio Programmes

Any radio station can be recorded straight onto a previously loaded cassette. To make a recording, depress the Rec./VAT button (33) and hold down until the pause button (32) and the start button (31) have been depressed. The automatic recording circuit will adjust to the correct level. The LED (40) fluctuates in sympathy with the speech or music. At the point where recording is to be started, release the pause button (32). The tape starts up and the broadcast is recorded.

Interference experienced on the long or medium waveband when the record button is depressed, making it impossible to receive the station properly, can be suppressed by turning the switch (46) to the other stop position.

## FAT (Fade) Button

If a recording is to be faded in slowly depress and hold the Rec./VAT button ③③ and release it "slowly" after the start button has been released. Similarly, by pressing the Rec./VAT button in slowly, the signal can be faded out.

## Pause

The tape can be stopped for short periods during recording by depressing the pause button ③② (eg: to eliminate announcements during transmissions of music), when playing records to bridge intervals between records being placed on the turntable and when playing back tapes. To restart the tape, press the pause button again and release it.

## Stop and Removal of the Cassette

When recording has been completed, depress the stop button ②⑦ which then releases the record button ③③ and the start button ③①. To remove the cassette depress the Stop/Cass. button ②⑦ again, the cassette compartment ③④ will open. The cassette can be turned over or replaced with a fresh one for further recording.

## Fast Wind

To listen to your recording, the tape must first be rewound to the beginning by depressing the rewind button ③⑩ if a certain recording is to be played back from a fully recorded cassette or part of the recording is to be skipped, wind the tape forward by depressing the forward wind button ②⑨.

When the required tape position has been reached, depress the start button ③①.

## Counter

The counter ③⑥ is set to (000) by pressing the reset button. At the start of a recording the counter position should be noted together with the title and also at the end if there is sufficient tape left for further recordings. On playback, set the counter ③⑥ again to (000) after the cassette has been inserted. Any chosen title may then be selected by winding the tape forward and observing the counter reading.

This naturally applies only if the cassette has been fully rewound before it was inserted.

## Automatic End of Tape Stop

When the end of the cassette is reached, the tape is automatically stopped (except on playback) and the function buttons are released. On playback the radio recorder switches over to reverse operation.

If recording, the record button ③③ is also released.

## Playback

For cassette playback, the recorder must be switched on with switch ②③ and the start button ③① depressed. When the end of the cassette is reached, the recorder will automatically switch to "reverse operation" (see section headed "Reverse Operation"). The volume and sound impression can be varied with controls ①⑦ to ②⑩. When external loudspeakers are connected, the built-in loudspeakers will be disconnected. For reproduction via headphone plugged into socket ②②, the loudspeakers are also disconnected.

## Recording with Built-in Microphones

Switch on the recorder with switch ②③. No accessories should be connected to the sockets.

Depress the pause button ③②. Depress Rec./VAT button ③③ and start button ③①. Make a short speech test to adjust the automatic level control. After the pause button has been released, a start can now be made with recording.

A few test recordings will show the most favourable method of recording taking into consideration the acoustic distance from the microphones ①⑤.

## Replaying Cassettes and Recording from Other Sources

With some radio recorders, when the cassette section is being used the radio section may cause static or background noise. No such problems exist with this radio recorder, simply press button ⑤ or ⑥ when using the cassette section of the machine.

## Playback

1. Via the built-in loudspeakers, external loudspeakers or headphones:

To replay a recording press the start button ③①. Volume control ①⑦, bass control ①⑨, treble control ②⑩ and stereo balance control ①⑧ should be adjusted to personal taste.

2. Via an amplifier:

Connect socket ①⑩  $\approx$  ④③ of the radio recorder to the tape input socket of the amplifier via GRUNDIG cable 242. Switch the amplifier to tape replay. Set the volume control ①⑦ to minimum, now press the start button ③① and adjust the volume and tone controls on the amplifier.

## Preparing to Record

The connection of accessories and components to the socket ④③ is shown in the illustrations and explained in the following text. (The contact arrangement of the socket is shown in the circuit diagram). Any accessory connected to socket ④③ will switch off the built-in microphones ①⑤.

## Recording with External Microphone

When recording with a microphone (GDM 308 or GCM 309), the start/stop of the tape can be remotely controlled. Connection is made to socket ④③ and button ⑥ must be depressed. The remote control function via these microphones is also possible on playback, fast forward wind and rewind.

## Record/Replay with External Radio

Even though the RR 1140 provides a wide radio coverage, it is possible to record from — and replay through — a separate radio. Connect GRUNDIG cable 242 to socket ①⑩  $\approx$  ④③ and to the respective tape socket of the external radio receiver. Button ⑥ must be depressed.



### Recording Gramophone Records

A record player can be directly connected to the RR 1140, provided the tone arm is fitted with a crystal or ceramic cartridge. Connection should be made to socket ④④ and button ⑤ depressed. If the record player is already connected to an amplifier having separate tape ②② and phono ① sockets, GRUNDIG cable 242 should be connected between the tape socket and socket ④③ of the RR 1140. Button ⑥ must be depressed.

### Copying Tapes

If you wish to connect your RR 1140 to a similar radio recorder, use GRUNDIG cable 242 to connect socket ④④ to the respective socket of the other machine (see operating instruction for the other recorder). Depress button ⑥ when using the RR 1140 to make the copy.

When recording onto machines having an universal input socket, adapter 296 must be used.

With mono machines, an adapter plug 293 or 294, respectively, must be used.

When making a recording on a machine having separate input sockets for record ① and the RR 1140 is being used on playback, a single cable connection is sufficient. If separate inputs are not available adapter 296 must be used.

### Monitoring

Except if recordings are made with the built-in microphones, the built-in loudspeakers can be used for monitoring a recording as it is being made. The monitor volume can be adjusted with the volume control ①⑦.

It is advisable to monitor microphone recordings of mixed sound sources through headphones. If the monitoring volume has been turned up too high, acoustic feedback may result, heard as howling or whistling. If this should happen, depress the stop button ②⑦, turn back the volume control ①⑦ and record from the beginning again.

## Note

### Treatment of Cassette Tapes

Cassettes should never be placed on radiators or near other heat sources, as this will distort the tapes and make them unsuitable for further use. When not in use, cassettes should always be stored in the boxes supplied to prevent soiling or looping. To remove any loops in the tape, it should be wound back slightly.

### Safeguard Against Accidental Erasure

Each recording will erase any previous recording on the tape automatically. Commercially pre-recorded tape cassettes are protected against erasure and lock the record button ③③. Your own recordings can be safeguarded in the same way by breaking the appropriate safety lug off the opening situated directly behind the side index **A** or **B** at the back of the cassette. Each side can be protected separately. If the side should have to be erased subsequently ready for a new recording to be taken, the opening can be closed up again by sticking some sellotape over it.

### Maintenance

The radio recorder is so designed that it is guaranteed to operate for a long time without requiring servicing. If a fault should nevertheless develop, consult your dealer. The front of the heads, the capstan and the rubber pinch roller may get soiled by oxide abraded from the tape and must be cleaned occasionally. To do this, open the cassette compartment ③④ and switch the recorder to START. The heads, capstan and pinch roller can be seen clearly through the window. Clean with a little methylated spirits or solvent naphtha using a lint-free cloth. Under no circumstances should the head surface be touched with a metallic or other hard object as this would inevitably cause serious damage. After cleaning, depress the stop button ②⑦ before a cassette is inserted and the cassette compartment ③④ is closed.

The tape heads can be cleaned even more simply by means of the GRUNDIG cleaning cassette 461 which can be bought from the dealers. In this case, insert the cassette and allow it to run through the recorder set to playback (about five minutes). The casing may be cleaned only with a soft antistatic cloth. Sharp polishing and cleaning agents will damage the surface.

**Important:** This equipment must not be exposed to temperatures exceeding 70° C. It should be borne in mind that this temperature may be exceeded in the rear window of a car exposed to strong sunlight.

Digital Clock

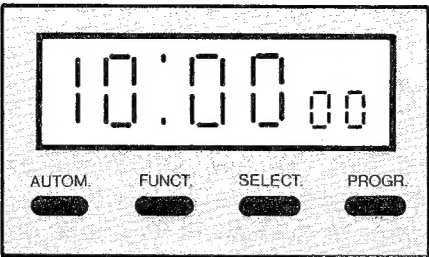
Preperation for operation:  
Remove cover of battery compartment ④⑤ and insert two batteries (Mignon, 1.5 V) observing polarity as indicated in the compartment.

Adjustment of the Digital Clock

When the new batteries are inserted for the clock, this will show any indication. The clock must therefore be programmed in all functions. If, after changing batteries, the clock can not be set, interrupt the circuit by lifting up once or, if required, several times, one battery (when doing so, do not actuate a clock set button). Before the clock is adjusted, it is advisable to read first through the following examples, as in some programmed conditions the indication changes after approx. 30 seconds back to "time indication".

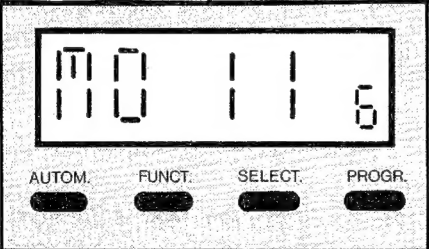
Symbols

- = Simultaneously depress buttons briefly
- = Depress button and hold until the required figure is obtained
- = Indication blinks



1. Setting the clock time (example 10.00)

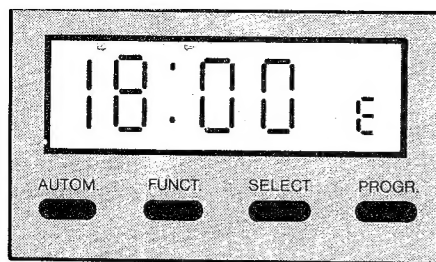
Autom.	Funct.	Select.	Progr.	Indication	Explanation
○			○	0 : 00 00	Initial state: Any indication
		○	○	0 : 00 00	Indication is set to 0
	●		●	10 : 00 27	ready for setting the hours
		○	○	10 : 00 40	Setting the hours
	●		●	10 : 00 00	ready for setting the minutes
		○	○	10 : 00 00	Setting the minutes; seconds at 00
		○	○	10 : 00 00	Setting process concluded, start time measurement (eg: with time symbol)



2. Setting the date (Monday 11. 6.)

Autom.	Funct.	Select.	Progr.	Indication	Explanation
				10 : 02 1 *	Initial state: Clock time
	○		○	SO 0 1	Indication: Date
		○	○	SO 0 1	ready for setting the weekday
	●		●	MO 0 1	Setting the weekday
		○	○	MO 0 1	ready for setting the calender day
	●		●	MO 11 1	Setting the calender day
		○	○	MO 11 1	ready for setting the month
	●		●	MO 11 6	Setting the month
		○	○	MO 11 6	Setting process concluded, date indication switches after approx: 30 sec. to clock time

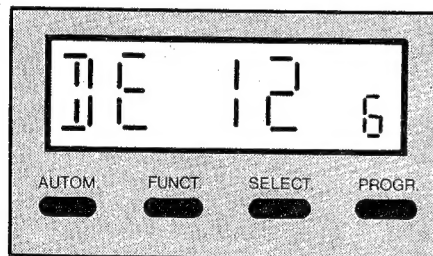
\* or previously inserted data



### 3. Switch-on time: (Example 18.00)

Autom.	Funct.	Select.	Progr.	Indication	Explanation
				10 : 14 20	Initial state: Clock time
	○		○	MO 11 4	Indication: Date
	○		○	0 : 00 E*	ready for setting the switch-on time
		○	○	0 : 00 E	ready for setting the switch-on hour
	●		●	18 : 00 E	Setting the switch-on hour
		○	○	18 : 00 E	ready for setting the switch-on minutes
	●		●	18 : 00 E	Setting the switch-on minutes
		○	○	18 : 00 E	Switch-on time fixed, switches after approx 30 sec. to clock time

\* or previously inserted data



### 4. Switch-on date: (Example 12. 6.)

Autom.	Funct.	Select.	Progr.	Indication	Explanation
				10 : 35 14	Initial state: Clock time
	○		○	MO 11 6	Indication: Date
	○		○	18 : 00 E	Indication: Switch-on time
	○		○	D- 0 1	ready for setting the switch-on date
		○	○	D- 0 1	Setting the readiness for switching (inactive)
	●		●	DE 0 1	Setting the readiness for switching (active)
		○	○	DE 0 1	ready for setting the switch-on day
	●		●	DE 12 1	Setting the switch-on day
		○	○	DE 12 1	ready for setting the switch-on month
	●		●	DE 12 6	Setting the switch-on month
		○	○	DE 12 6	Switch-on date fixed, switches to clock time after approx. 30 sec.

If the switching time is the same every day the clock must be switched to D- when the "ready for switching adjustment" is carried out. To switch on the daily recurring function, the buttons "Autom." and "Progr." must be depressed. The fact that the circuits have been switched on can be seen from the blinking of the colon between the hour and minute indication. The readiness for switching must be provided anew after every on/off operation.

## Retrieving the inserted Data

Normally, the set clock time is displayed. By depressing the "Funct." and "Progr." buttons below the display panel once, the date is indicated; after approx. 30 seconds the clock will switch back automatically to clock time.

By depressing the above-mentioned buttons twice, the switch-on time will be displayed.

By depressing the above-mentioned buttons three times, the switch-on date will be displayed.

By depressing the above-mentioned buttons four times, the switch-off time will be displayed.

In all these cases, the clock will switch back automatically after 30 seconds to the actual time.

## Switching on and off with the Digital Clock

### a) Once-only switching to the programmed date with switch-on and off time

Programme the switch-on time.

Activate switch-on date with identification letters DE

Programme switch-off time.

Prepare switching state by depressing the buttons marked "Autom." and "Progr." below the time display. The colon between the hour and minute indication will then blink. The equipment will be switched on at the pre-selected times when switch ②③ is set to "Autom". In this way, any required broadcast can be recorded directly onto the cassette provided that the appropriate function has been adjusted (see recording).

### b) Repeated switching daily at the same time (eg: used as an alarm clock).

Proceed as above, but in the switching state "Switch-on Date" select the identification letter D-. The equipment will then switch on and off every day at the pre-set time. After being switched off, the clock must then be set ready for the next switch-on time by depressing the "Autom." and "Progr." buttons anew; the colon will blink again.

<div> <div>19:00 A</div> <div> <div>AUTOM.</div> <div>FUNCT.</div> <div>SELECT.</div> <div>PROGR.</div> </div> </div>				Indication		Explanation
				10 : 47 28		Initial state: Clock time
	○		○	MO 11 6		Indication: Date
	○		○	18 : 00 E		Indication: Switch-on time
	○		○	DE 12 6		Indication: Switch-on date
	○		○	0 : 00 A		ready for setting the switch-off time
	●	○	○	0 : 00 A		ready for setting the switch-off hour
	●		●	19 : 00 A		Setting the switch-off hour
		○	○	19 : 00 A		ready for adjusting the switch-off minute
	●		●	19 : 00 A		Setting the switch-off minute
		○	○	19 : 00 A		Switch-off time fixed, switches to clock time after approx. 30 sec.

## 5. Switch-off time: (Example 19.00)